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summer of 1892. Lieutenant Peary will then take a northeast route, skirting the coast, but keeping on the unbroken inland ice. As the party proceeds, their route will bend to the northward and reach the furthest point north of the Greely expedition. From that point an effort will be made to reach the northern terminus of the land and determine its character, and also the existence of an open polar sea. At the same time the Academy of Sciences corps will proceed southward. Lieutenant Peary states that he will make journeys from station to station on snow-shoes and ice-skates or skias, while provisions will be transported by Eskimo dogs and by members of the party. It is believed by Professor Heilprin and others that the party will reach within 350 miles of the North Pole by traveling, it is estimated, about 1,200 miles to and from the main station. This journey will consume about three months, including rests, and the daily journey will cover from eighteen to twenty miles. He proposes to see if the region of the North Pole is of land or water, and hopes to discover the polar open sea.

GEOLOGY AND PALEONTOLOGY.

The Name Huronian.—Professor Alexander Winchell, in the Bulletin of the Geological Society of America, Vol. II., pp. 85-124, remarks as follows :

“Clearly, the interests of geology and of truth demand an adjustment of these conflicting conditions in terminology. If Sir William Logan unwittingly extended the term Huronian over two systems now known to be distinct, that usage cannot be continued. Either the name must be restricted to the upper system, or it must be relegated to synonymy. We think it may be appropriately attached to the upper system. The early Canadian geologists sought a term which would cover, first and chiefly, the great quartzites which were found to follow the Silurian strata in downward succession. Underneath were seen so-called chloritic schists and a slate conglomerate. In the region first studied these were seen to rest on crystalline rocks, and appeared to fill completely the gap between the Silurian and the gneisses. These strata were all conformable, and evidently constituted a system. If it had not been previously named, the Canadian geologists conferred a service on science in giving it a designation.

“Soon, however, older schists than these were described ; but since their structural discordance with these was not striking in the original

region, as known thirty years ago, and since their conglomerate and slaty characters were similar to those in some strata of the system first named, it was natural, or at least it was venial, to include these latter with the former. If, now, we have learned that they are geologically incongruous with the higher, it appears obviously necessary to drop them off, however prolonged the period in which they have been associated together.

"This is the view which we have maintained for several years. We have insisted that the so-called Huronian of Lake Superior is an older system than the Huronian of Lake Huron. But we were not aware, it must be confessed, until our recent studies, that the same older system was actually present north of Lake Huron.

"If, then, we restrict the term Huronian to the upper system, it remains attached to the best-known and characteristic portion of the old complex Huronian. There will remain the older system, not distinctively named until Dr. Lawson in 1866 bestowed upon it the name 'Kewatian.' In volume, in petrographic and stratigraphic characters' it is a system. It should therefore receive a name of systemic form. Such name is Kewatian, homophonous with Huronian, Silurian, and the remaining systemic names.

"Whether the term Huronian must not yield to the priority of Taconic or Cambrian, we will not discuss. Whether Kewatian can take precedence over Azoic, Taconic, and Cambrian, remains to be decided. It is the misfortune of all these names, except Kewatian, that they were originally intended to cover a complex of strata which has been proved to constitute two distinct systems."

Pre-Paleozoic Surface of the Archean Terranes of Canada.—Mr. A. C. Lawson has collected evidence to show that the hummocky aspect of the Archean terranes of North America is not due to the action of the ice of the Glacial epoch, but that it was characteristic of the surface upon which the earliest Paleozoic sediments were deposited. In pursuing the work incident to this paper, Mr. Lawson found also excellent presumptive evidence that the greater part, if not the whole, of the Canadian Archean terranes were at one time covered by Paleozoic strata. (Bull. Geol. Soc. Am., Vol. I., pp. 113-174.)

A Mesozoic Fish Fauna in New South Wales.¹—Mr. A. Smith Woodward has recently published a memoir on some fossil fishes

¹ The Fossil Fishes of the Hawkesburg Series at Gosford. By A. Smith Woodward, F.Z.S., F.G.S. Memoirs of the Geological Survey of New South Wales. Paleontology, No. 4.

collected by Mr. Charles Cullen at Gosford, New South Wales. The series comprises nearly four hundred specimens obtained from a layer of dark-gray shale, four feet thick, interstratified with the massive beds of sandstone belonging to the Hawkesbury formation. As a result of Mr. Woodward's researches, they have been classified as follows: One Dipnoan, possibly allied to *Ceratodus*, *Gosfordia truncata*. Of the family Palæoniscidæ, *Myriolepis clarkiei*, *M. latus*, *Apateolepis australis*; of Catopteridæ, *Dictyopyge symmetricus*, *D. illustrans*, *D. robustus*; of Belonrhynchidæ, *Belonrhynchus gigas*, *B. gracilis*; of Semionotidæ, *Semionotus australis*, *S. tenuis*, *Pristisomus gracilis*, *P. latus*, *P. crassus*, *Cleithrolepis granulatus*, *C. ? altus*; of Pholidoporidae, *Pholidophorus gregarius*, *? Peltolepturus dubius*. All the species are new except *M. clarkiei* and *C. granulatus*. Of the genera, *Gosfordia*, *Apateolepis*, and *Pristisomus* are new.

An examination of this list at once demonstrates that the fauna is of early Mesozoic age, and Mr. Woodward regards the Hawkesbury beds as homotaxial with the Keuper of Europe, or, at the latest, with the Rhætic. An important fact leading to this conclusion is the absence in this series of fishes with well-developed vertebral centra.

Ten plates accompany the text, from which one learns how much good work can be done with very fragmentary fossils.

A Cimoliosaurus from the Niobrara Cretaceous of Kansas.—Prof. Williston has recently described a Cimoliosaurus from the chalk of Western Kansas, which is of interest by reason of the nature and preservation of the remains. The specimen comprises the skull and twenty-eight cervical vertebræ, all attached, and with their relative positions but little disturbed. The entire length of the skull is about nineteen inches, its greatest height about nine inches. It is evident that the skull was a long and narrow one, quite similar to that of *Plesiosaurus conybeari* Sollas. Prof. Williston describes for the first time the teeth of an American species.

Pleistocene Subsidence versus Glacial Dams.—Prof. J. W. Spencer's studies of the old shore-lines, such as beaches, terraces, and sea-cliffs, in the northeastern part of North America, lead him to think that these shores were constructed at sea-level, and not moulded in glacial lakes. Under these conditions it is necessary to accept a great subsidence of the continent, in later Pleistocene times, to nearly 2,700 feet in Western Pennsylvania. He also cites foreign examples to show that these continental movements are not peculiar to America, but that the record of subsidence may be read in the Barbadoes, in Asia, and in Europe. (Bull. Geol. Surv. Am., Vol. II., pp. 465-476, pl. 19.)

On Some New Fishes from South Dakota.—The Rev. D. S. McCaslin and the Rev. Wm. M. Blackburn have sent me some specimens of fossil fishes obtained by the latter gentleman from the Ree Hills in South Dakota. They are preserved on slabs of a soft, chalky rock, and are in pretty good preservation. The age of the horizon has not yet been determined. It is overlaid, according to Mr. Blackburn, by a thin layer of glacial drift. There are five species, all new to science. I describe them below, and reserve reflections as to their probable geologic age until their characters have been pointed out.

GEPHYRURA CONCENTRICA, gen. et sp. nov. *Isospondylorum* vel *Haplomorum*.—*Char. gen.*—Mouth small, the superior border formed by the premaxillary, the maxillary apparently not contributing; no teeth. Branchiostegal rays six, or probably seven. Dorsal fin median in position, short, originating above a point just posterior to the origin of the ventrals, and extending to a point above the anal fin. Vertebrae keeled, the last not modified by the development of hypural bones, but terminating abruptly, or *gephycercal* (Ryder). Caudal fin normal, and not elongate. Scales cycloid, with strong concentric grooves, and a few proximal radii crossing them. No lateral line discernible. Fins without conspicuous spines.

Char. specif.—The only specimen is broken vertically across the middle, and the posterior half shifted so as to lie immediately below its proper position. It appears that little or no part of the fish has been lost. Radii, P. 9; D. 9; C. 6-16-8; A. II 11. V. 1-6; vertebrae, 10-18. Scales in twelve longitudinal rows between dorsal and ventral fins, and equal in number to the vertebrae on the longitudinal line, or twenty-eight. Head covered with scales; five in a vertical line on the operculum. The dorsal, pectoral, and ventral fins are rather small. The caudal fin is probably not much forked, if at all. The orbit is large, but its outlines are not well preserved. The head enters the total length four and a quarter times to the base of the caudal fin-rays, and slightly exceeds the depth at the ventral fins. Total length, 61 mm.; do. of head, 15 mm.; do. to base of ventral fin, 24.5 mm.; do. to base of anal fin, 30 mm.; depth at ventrals, 14 mm.; depth at caudal peduncle, 6 mm.

This fish may belong to the Cyprinodontidae. It is peculiar in the absence of the hypural bones, the caudal region resembling the type modified from the *diphycercal*, called by Ryder the *gephycercal*.

? *SARDINIUS BLACKBURNII*, sp. nov.—This fish is represented by a single specimen, which is in good preservation with the important ex-

ception that it lacks the head. Its generic position is therefore not positively determinable, although it is strongly suggested by the parts preserved. If not strictly a species of *Sardinius*, it is an allied form. The vertebræ have longitudinal fossæ; the hypural bones are well developed, and distinct from each other. The dorsal fin commences above the ventrals, and is of moderate length; anal not elongate. The spaces between the caudal hæmal spines are traversed by a slender rod obliquely downwards and backwards near the vertebræ. The scales are cycloid and with strong concentric grooves. Owing to the loss of many of the scales, the presence of a lateral line cannot be affirmed. One interneural in front of D. I.

Char. specif.—Radii, D. 1-7 (possibly one lost at the end); A. 8; V. crowded together, but not less than six. Caudal vertebræ, 17. Depth at D. I entering length to bases of caudal rays, 1.5 times. Depth of caudal peduncle, 2.25 in the same. Length from front of base of D. to end of caudal fin, 29 mm. Length of caudal vertebral series, 20 mm. Vertical depth of caudal fin, 22 mm. Length of base of dorsal fin, 6 mm.; elevation of do. 8 mm.

PROBALLOSTOMUS LONGULUS, gen. et. sp. nov.—? *Isospondylorum*.

Char. gen.—Mouth small, ? superior, at the extremity of a prolonged muzzle. Dorsal vertebræ elongate, fossate; caudal vertebræ shorter. Pectoral fin median, lateral; dorsal above ventrals, median; anal small; caudal large, little emarginate. No conspicuous spines. Hypural bones distinct from each other. It is probable that the single species known is either scaleless or that the scales are extremely minute. The affinities of this genus are not exactly determinable, owing to the injured condition of the head. It may be allied to either of the two genera already enumerated. The remarkable production of the muzzle distinguishes it from either, as well as the elongate vertebræ, and corresponding width of the intercostal spaces.

Char. specif.—Radii, D. 1 8; C. 6 21, 3; A. 1 6; V. 10; P. 10. There is a break behind the skull, so that the number of dorsal vertebræ is uncertain; there were at least 13; caudal vertebræ, 18. The form of the postcranial regions is slender, the depth at the dorsal fin entering that region to the base of the caudal fin six times, and the total length ten times. The head enters the total minus the caudal rays, one and three-fifths times, or twice, including the caudal fin. The caudal peduncle is long, and its depth enters the total length minus the caudal fin, thirteen times; its length enters the total minus the head, two and one-half times. Total length, 87 mm.; approximate length of head, 29 mm.; of caudal vertebræ, 20 mm. Depth at ventral fins, 7 mm. Elevation of dorsal fin, 7 mm.

OLIGOPLARCHUS SQUAMIPINNIS, gen. et. sp. nov. Percidarum.—Apparently allied to *Lepomis*, but I cannot determine the presence of vomerine teeth or the number of the branchiostegal rays.

Char. gen.—Jaws with a few rows of conic acute teeth. Apparently no palatine or pterygoid teeth. Operculum without notch or production of the posterior angle or border. Bones of the head smooth, and not serrate. Scales ctenoid, with rough area externally and concentric grooves internally, and radii proximally. Spinous radii, D. X. ; A. III. ; P. I. Spinous dorsal continuous with soft portion, both together much larger than the anal fin. Caudal fin furcate. Skull with a median crest, from which a series of interneural bones extends to those supporting the dorsal fin. Lateral line not discoverable.

This genus appears to be allied to the Percid genera related to *Centrarchus*, which now inhabit North American waters. It differs from all of them in one way or another, as for instance in the form of the opercular border, or in the number of the spinous rays and their proportions. It is perhaps most closely allied to the extinct genus *Pliolplarchus* Cope, differing mainly in the small number of anal rays ; that genus possessing from five to seven. These differences are the same as those that separate some of the recent genera, showing that the same diversities existed in Cenozoic times as now. In the best preserved specimen I count six branchiostegal rays, but I am not sure that this is the entire number. The puses are connected with the clavicles directly ; vertebræ with lateral fossæ.

Char. specif.—This species is the most abundant, as many as twelve individuals having come under my observation. The largest is about equal in size to our smaller existing sunfish, *Lepomis pallidus*. Radii, D. X 9-10 ; C. 5, 17, 5 ; A. III 7-8 ; V 1-5 ; P. I 12. The dorsal spines increase regularly in length to the tenth ; the first rises above the base of the ventral fin, which is a little behind the base of the pectoral. The anal fin commences below the first soft ray of the dorsal fin, and is nearly coterminous with the last soft ray of the same. The ventral spine is quite as robust as any of the dorsal spines, and is subquadrangular, with the external and posterior faces convex, and the anterior grooved. The anal spines are robust, the third the longest. The scales are in from twelve to fourteen longitudinal rows. In one specimen, of larger size than the others, there are seventeen rows. This probably indicates another species, but it is too imperfect for characterization. Scales rather smaller than those of the body extend on the interspinous membranes of the soft dorsal and caudal fins, and on the opercular and suborbital regions of the head. Vertebræ, D. 12, C.

16. Length, exclusive of caudal fin, 52 mm.; length of head, 18 mm.; do. to base of D. 1 (axial), 21 mm.; do. to base of ventral, 22 mm.; do. to base of anal, 35 mm.; depth at base of D. 1, 19 mm.; do. of caudal peduncle, 10 mm.; length of tenth dorsal spine, 8 mm. The specimen measured is one of the smaller ones, and is selected on account of its good condition. The larger specimen above mentioned measures 34 mm. in depth at the first dorsal spine, and the head is 28 mm. in length.

MIOPLOSUS MULTIDENTATUS, sp. nov.—Represented by a specimen nearly perfect, but wanting the caudal and anal fins. It conforms exactly to the characters of *Mioplosus* Cope in the distinct dorsal fins, the serrate inferior border of the preoperculum, the two anal rays, and the ctenoid scales. Radii: Br. VI (? +); D. XII-12; V. 6, no well-developed spine. Dorsal fins slightly separated at the base; the longest spinous ray the third; the first very short. Vertebræ, D. 14, C. 16, the last one counted possibly not the last, as its distal end is broken off. Scales in about twenty longitudinal rows at the ventral fins, and twelve at the caudal peduncle; with proximal radii coarse, and no concentric grooves. Posterior limb of preoperculum smooth; the inferior with nine robust teeth directed forwards. A serrated crest on the posterior part of the skull, which is either the superior branch of the posttemporal or immediately adjoins it. Eye large; muzzle short, not longer than diameter of orbit. Mouth opening obliquely upwards. Ventral fin originating a little in front of dorsal, its rays quite long. Anal originating below anterior ray of second dorsal. Depth of body at first dorsal a little less than one-third of length without caudal fins, and equal to length of head. Length of head, 35 mm.; do. to base of first dorsal, 41 mm.; do. to base of second dorsal, 75 mm. Length of muzzle to orbit, 11 mm.; depth of second dorsal, 23 mm. The proportions of this species are about as in the *M. abbreviatus*, and the number of scales as in *M. labracoides*. The peculiarity consists in the increased number of spines of the first dorsal fin (nine in the other species), and dorsal vertebræ (ten in other species), and preopercular teeth (five in other species).

GEOLOGICAL POSITION.—The first observation to be made on the species above described is that they differ as to species, and three of them as to genus, from all others discovered elsewhere, both fossil and recent. The next conclusion is that they include no Cretaceous types, the only identification with a Cretaceous genus (*Sardinus*) being purely provisional. The third point is that the genus *Mioplosus* has been found hitherto in the Green River Eocene only. The age is

Cenozoic, but to which system the fauna belongs it is difficult to discover. None of the genera have been found in the Amyzon shales, and but one in the Green River shales, so that their pertinence to the Eocene fauna is doubtful. The chalky matrix much resembles that of some localities of the White River Neocene (Oligocene), and I should not be surprised if it should be found that this is the age of the fossils. It is likely that they were lacustrine in habitat.—E. D. COPE.

Geological News.—Paleozoic.—G. M. Dawson calls attention to the great Cambrian formation of the Selkirk Range. Its estimated thickness is about 40,000 feet. (Bull. Geo. Soc. Am., Vol. II., pp. 165-176.)—Mr. H. M. Ami has found a fauna in the Quebec city rocks which is distinct from that of Point Levis. If his determination of the fauna is correct, the horizon of these rocks is that of the Trenton. (Bull. Geol. Soc. Am., Vol. II., pp. 477-502.)—Mr. J. L. James considers the Maquoketa shales an extension of the Cincinnati group. He bases this opinion on studies of rocks of the Cincinnati age from Richmond, Indiana, to Savannah, Illinois. (*Am. Geol.*, June, 1890.)—H. R. Geiger and Arthur Keith classify the sandstones of the Blue Ridge near Harper's Ferry as Upper Silurian. (Bull. Geol. Soc. Am., Vol. II., pp. 155-164, pls. 4, 5.)—Mr. J. F. Whiteaves has recently described and figured several new species of fossils from the Devonian rocks of Manitoba. The list comprises one Brachiopod, three Mollusks, two Gasteropods, and nine Cephalopods. (Trans. Roy. Soc. Can., Sect. IV., 1890.)—Mr. S. A. Miller reports forty new species of Crinoids from the Lower Carboniferous of Missouri. More than half of the number belong to the genus *Platycrinus*. (Bull. No. 4, Mo. Geol. Surv.)

Mesozoic.—Mr. A. Smith Woodward has added the following new species to the list of British Jurassic fishes: *Eurycormus grandis*, *Hypsocormus leedsii*, *H. tenuirostris*, *Leedsichtlys problematicus*, *Brownieichthys ornatus*. (*Geol. Mag.*, Oct., 1889.)

Cenozoic.—During the past season Mr. G. F. Becker has found additional reasons for maintaining the existence of diabase in the Washoe Cenozoic rocks, and also for dividing the pyroxene andesite into two distinct outflows, separated by a long interval of time. (Bull. No. 6, Cal. Acad. Science.)—Mr. N. H. Darton, of the U. S. Geol. Surv., names the Eocene formation which extends through Maryland and Virginia the Pamunky, and the Miocene of the same region the Chesapeake. (Bull. Geol. Soc. Am., Vol. II., pp. 431-450, pl. 16.